

Work Order ID 126395

Thursday, November 06, 2014 10:46:25 AM

KeyH
126395

Page 1

Item ID: 647.4310

Revision ID:

Item Name: LH Lower Strut

Start Date: 11/6/2014 Start Qty: 16.00

Required Date: 11/6/2014 Req'd Qty: 16.00

Reference:

Approvals: Process Plan: MLJ Date: 11-11-06 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

N900040100

Setup Start ***NS1***

Stop ***NS2***

Cust Item ID:

Customer:

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
647.4300	A

110 0.00

110

Waterjet

FLOW CNC Waterjet

Memo

1-Cut 6474300 plate 5.00X1.75 as per Dwg

Dwg Rev: 2

Prog Rev: A

2-Deburr if necessary

0.00

(20)

11/11/07

DAS
23
9-89

120

QC2- Inspect parts off machine FAI/FAIB

0.00

120

QC

Quality Control

Memo

0.00

(20)

11/11/07

DAS
23
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge	☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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126395

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N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 11/6/2014 **Start Qty:** 16.00

16

Cust Item ID:

Required Date: 11/6/2014 **Req'd Qty:** 16.00

16

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code
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Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

Weld per dwg A/R S.S. rod Batch: M123823

0.00

160

Memo

0.00

Large Fab

Weld tube to plate as per dwg.
Weld end where tube is punch.

170

QC9- Inspect visual per QSI004- Fusion Welds

0.00

170

Memo

0.00

QC

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00

180

Memo

0.00

QC

Quality Control

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Equip/Tooling									
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FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Item ID: 647.4310 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: LH Lower Strut
 Start Date: 11/6/2014 Start Qty: 16.00 ***16*** Cust Item ID:
 Required Date: 11/6/2014 Req'd Qty: 16.00 ***16*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190		0.00							
190									
SprayPaint	Memo	0.00							
Spray Painting	Prime as per dwg (see note 4)								
	Batch: <u>131121</u>								
200	QC14- Inspect Spray Paint	0.00							
200									
QC	Memo	0.00							
Quality Control									
210		0.00							
210									
Packaging	Memo	0.00							
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV***								

20

CL 15 01-28

20

DAS
38
9-80

JAN 29 2015

DAS
27
9-80

20

FEB 09 2015

ack 066

DQA: _____ Date: _____

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Handling/Pre									
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Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 126395***126395***

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Thursday, November 06, 2014 10:46:25 AM

Item ID: 647.4310 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
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Start Date: 11/6/2014 Start Qty: 16.00 ***16*** Cust Item ID:
Required Date: 11/6/2014 Req'd Qty: 16.00 ***16*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	QC21 - Final Inspection - Work Order Release	0.00							
220									
QC	Memo	0.00							
Quality Control									

15/2/10 *[Signature]*
ME
15-2-9

DQA: _____ Date: _____



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Picklist Print

Thursday, November 06, 2014 10:46:28 AM

Page 1

Work Order ID: 126395

126395

Parent Item: 647.4310

647 4310

Parent Item Name: LH Lower Strut

Start Date: 11/6/2014

Required Date: 11/6/2014

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP REV:A 12.10.26 NEW ISSUE DD VERF:JLM IPP
REV:B 14.11.06 CHG MATERIAL TO S.S. DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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M304S16GA		Purchased	No				sf	473.5356		2			
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M304S16GA

304/316 Sheet .063

**

DE 11/11/07

DAS
23
9-89

Location

Loc Qty

Loc Code

MAT020

360.1356

M127821

71.317

M129449

192.8186

M130745

96

TPI

113.4

M129545

113.4

M304TR0.500W.049

Purchased

No

f

189.3515

30

M304TR0 500W 049

304 RD Tube .500 x .049W

**

Location

Loc Qty

Loc Code

MAT017

189.3515

M127937

168.548

M128833

20.8035

MV30999 x 34.166'

34.166'

15-01-09 MAL

DQA: _____ Date: _____

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence
		☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge
		☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other

APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 04048

SHEET 1 OF 1

DWG NO. 647.4300

REV: N/C

PREPARED
BY

D. PETERS

DATE: 08/12/13

EFFECT ON DWG
☒ INC. ☐ UNINC.

DWG TITLE: STRUT

APPROVED BY:

ENGR

MFG

QC

EFF:

NEXT ORDER

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: MARKED INSPECTION DIMENSIONS

ECR:

NONE

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 126395 MLCJ
14-11-06

DOCUMENTS EFFECTED:

☐ RFMS ☐ MDL ☐ INSTALL INSTRU C ☐ ICA ☐ BOM

CHANGE CATEGORY
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED
☐ YES ☒ NO

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

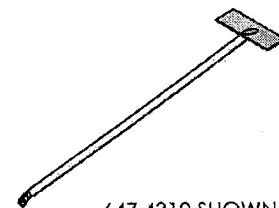
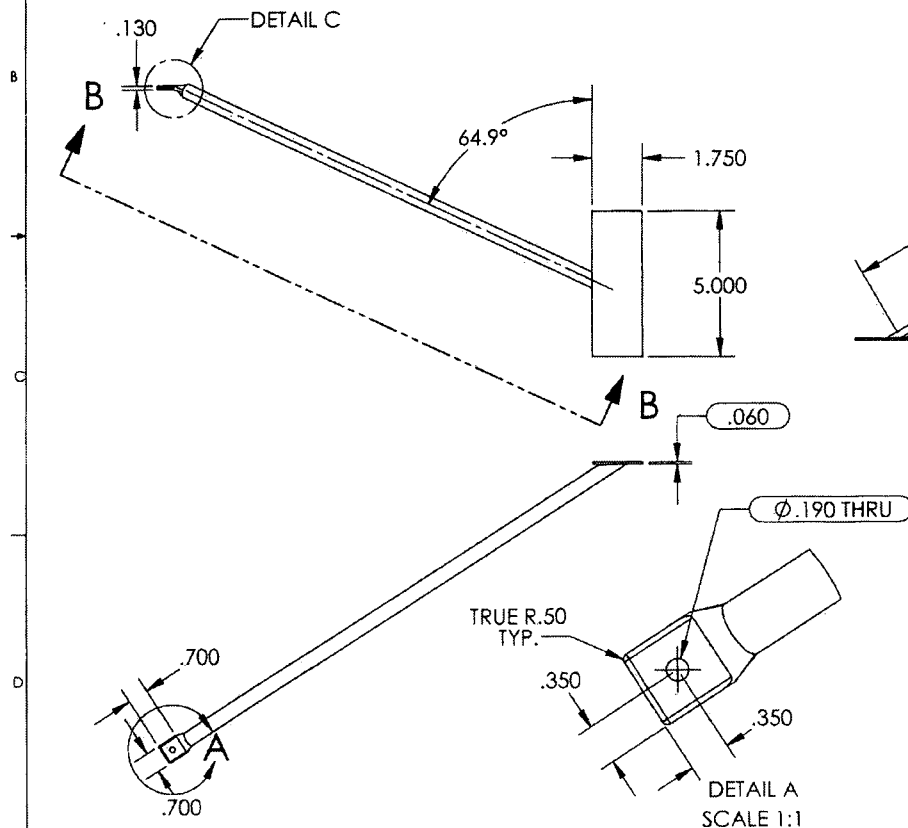
Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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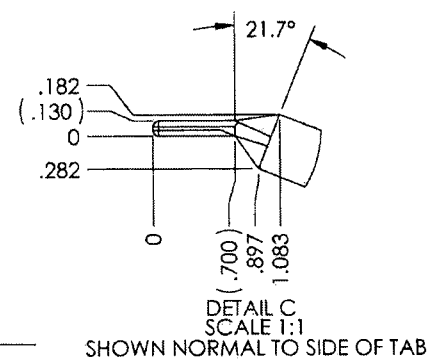
NOTES: UNLESS OTHERWISE SPECIFIED

1. MATERIAL: 4130 STEEL PER AMS-S-18729, .06" THK.
2. MATERIAL: 4130 STEEL PER AMS-S-18729, .13" THK.
3. MATERIAL: 4130 STEEL PER AMS-T-6736, .50" OD, .049" WALL THK.
4. FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES
6. IDENTIFY IAW MPP-120.
7. WELD IAW MIL-STD-2219. TIG WELD WITH FILLER ROD.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	LAST PROTOTYPE REVISION: PR1		
N/C	INITIAL RELEASE	10/07/09	P. BRAVO
A	INCORPORATED ECN 04048	08/12/13	P. BRAVO



647.4310 SHOWN
647.4311 OPPOSITE



			647.4313	RH UPPER STRUT							
			647.4312	LH UPPER STRUT							
			647.4311	RH LOWER STRUT							
			647.4310	LH LOWER STRUT							
			FIND #	PART #	DESCRIPTION				MATL		SPEC.

QTY		PARTS LIST			
NEXT ASSY (S)		APICAL INDUSTRIES			
647.3700		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300			
		STRUT			
		SIZE	CAGE CODE	DWG. NO.	REV. A
			07/MZ16	647.4300	
		SCALE NONE			SHEET 1 OF 2

ORIGINAL DATE 1/10/04 DATE DRAWN BY R. POSIANO CHECKED BY D. BARBER APPROVED BY P. BLANK DATE 02/06/04 CONTRACT NO.		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES	
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DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

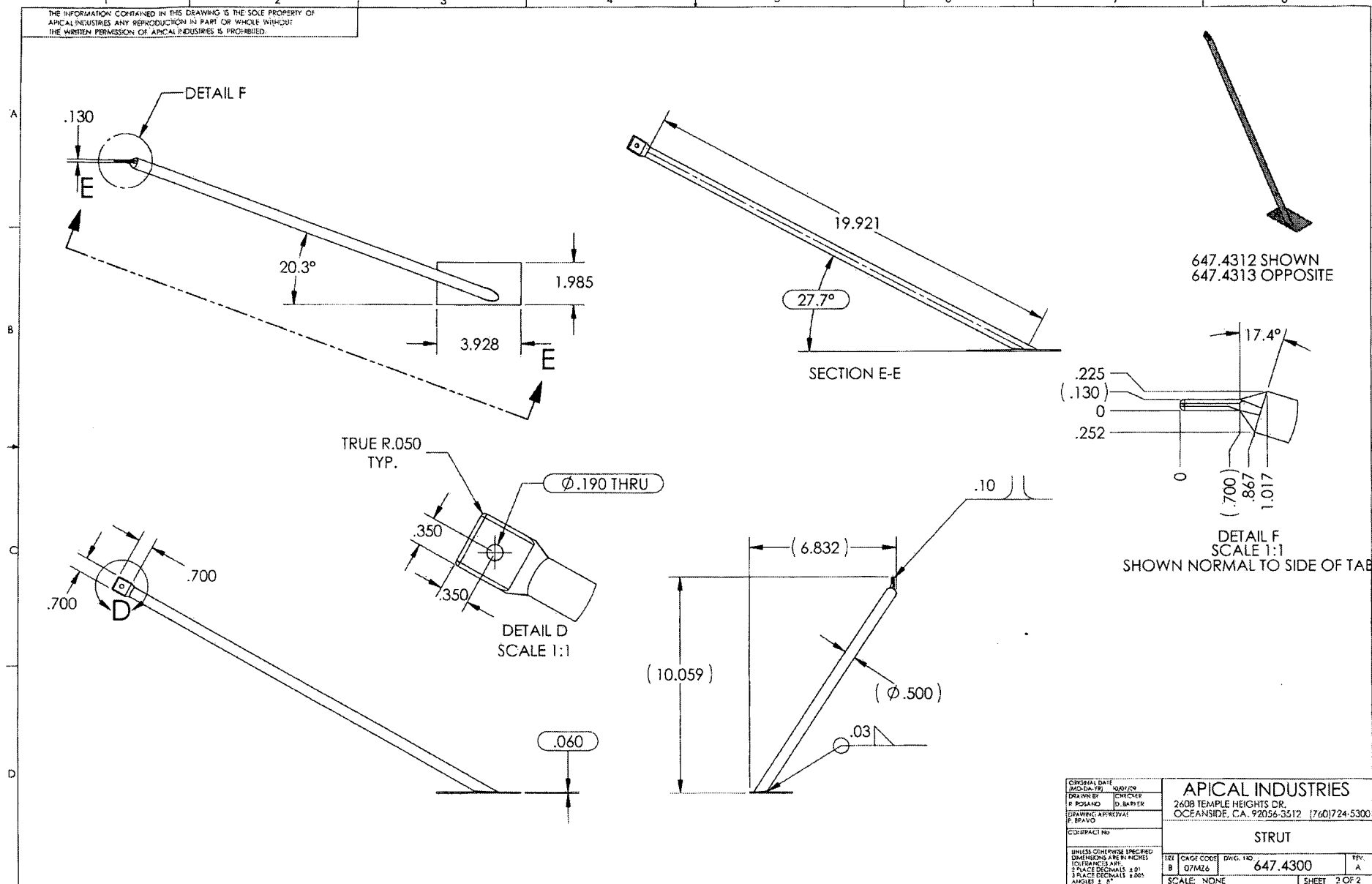
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ORIGINAL DATE		APICAL INDUSTRIES	
DRAWN BY: R. POLAND		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: D. BARNER		OCEANSIDE, CA. 92056-3512	
DRAWING APPROVED BY: P. BRAND		(760) 724-5300	
CONTRACT NO.		STRUT	
UNLESS OTHERWISE SPECIFIED		SCALE: NONE	
DIMENSIONS ARE IN INCHES		SHEET 2 OF 2	
TOLERANCES ARE:		REV. A	
2 PLACE DECIMALS ± .01		647.4300	
3 PLACE DECIMALS ± .005			
ANGLES ± .5°			

DQA: _____ Date: _____



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FAULT CATEGORY

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